ORIGINAL RESEARCH ARTICLE

Availability and readiness of post-abortion care in public and private healthcare facilities in Ile-Ife, Osun State, Nigeria

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Abstract

This study examined the availability, readiness and barriers of post-abortion care (PAC) services in healthcare facilities. Using a cross-sectional design, mixed-method data was collected from 25 selected public and private health facilities across three Local Government Areas (Ife Central, Ife East, and Ife North) in Ile-Ife, Osun State, Nigeria. Quantitative findings reveal significant disparities in PAC service readiness, with private facilities demonstrating higher availability for essential services such as blood transfusions (75.0%) and removal of retained products beyond 12 weeks (65.0%), compared to public facilities (40.0% for both services). Private facilities also had better emergency response capacity (45.0%) than public facilities (20.0%). Qualitative insights identified systemic factors, patient non-compliance, high service costs, inadequate PAC facilities, and negative attitudes of healthcare providers towards abortion as key barriers to quality PAC. PAC service readiness is better in private than public facilities. Addressing systemic barriers is essential for equitable access to PAC. *(Afr J Reprod Health 2026; 30 [3s]: 36-49).*

Keywords: Availability; barriers; readiness, post-abortion, private; public

Résumé

Cette étude a examiné la disponibilité, l'état de préparation et les obstacles aux services de soins après avortement (SAA) dans les établissements de santé. En utilisant un plan d'étude transversal, des données mixtes ont été collectées auprès de 25 établissements de santé publics et privés sélectionnés dans trois zones de gouvernement local (Ife Central, Ife East et Ife North) à Ile-Ife, dans l'État d'Osun, au Nigéria. Les résultats quantitatifs révèlent d'importantes disparités dans l'état de préparation des services de SAA, les établissements privés démontrant une plus grande disponibilité des services essentiels tels que les transfusions sanguines (75,0 %) et l'évacuation des produits de conception retenus au-delà de 12 semaines (65,0 %), comparativement aux établissements publics (40,0 % pour les deux services). Les établissements privés disposaient également d'une meilleure capacité de réponse aux urgences (45,0 %) que les établissements publics (20,0 %). Les données qualitatives ont mis en évidence des facteurs systémiques, la non-observance des patients, le coût élevé des services, l'insuffisance des infrastructures de SAA et les attitudes négatives des prestataires de soins de santé à l'égard de l'avortement comme principaux obstacles à la qualité des SAA. L'état de préparation des services de SAA est meilleur dans les établissements privés que publics. La prise en compte des obstacles systémiques est essentielle pour garantir un accès équitable aux SAA. *(Afr J Reprod Health 2026; 30 [3s]: 36-49).*

Mots-clés: Disponibilité ; obstacles ; préparation ; post-avortement ; privé ; public

Introduction

In Nigeria, more than 1.2 million abortions (an equivalent of 33 abortions per 1,000 women) were performed in 2012 alone, with about 200,000 women receiving medical attention for complications related to unsafe abortions[1]. An additional 285,000 Nigerian women who had undergone an abortion procedure in 2012 suffered problems severe enough to call for treatment but were unable to get the care they required.[1] Unsafe abortions result in complications like incomplete abortion, characterized by the incomplete expulsion of fetal products and moderate to severe vaginal bleeding. Common complications associated with incomplete abortion include damage to adjacent organs, pelvic infection, and severe bleeding, significantly contributing to maternal mortality. Despite strict abortion laws, Nigeria still experiences a high abortion rate, with an estimated

45.8 abortions per 1,000 women, as reported in a recent survey[2].

Regardless of whether abortion is legal, post-abortion care (PAC) is a service that all countries must provide to manage immediate and future abortion complications[3]. Yet, many women in Nigeria cannot receive high-quality PAC services following a complication[4]. Recognizing the importance of ensuring women's rights to adequate healthcare, this study assesses how well health facilities in Ile-Ife are prepared to meet the needs of women requiring PAC services. Among the few studies that have been done in this area is that of Bell et al who conducted a comparative study on the capability of health facilities in Nigeria and Côte d'Ivoire to provide PAC[5]. They found that not up to half of the health facilities in Nigeria provide essential PAC services. In contrast, their results showed greater availability of PAC services in Côte d'Ivoire. This gap in service delivery highlights the urgent need to evaluate healthcare systems in Nigeria[5].

Additionally, despite the slow increase in contraceptive use among married women in Nigeria[6], more women are getting hospitalized in Ile-Ife and South West Nigeria due to complications from induced abortion[7,8]. A study conducted at Obafemi Awolowo University Hospital in Ile-Ife reported that 35 percent of maternal deaths were due to complications from abortions, even when medical practitioners performed these procedures[9]. While previous studies in Ile-Ife have primarily focused on induced abortions[8,10,11], a gap remains in understanding the role of healthcare facilities in providing post-abortion care (PAC) services to women. This examination is critical given, on the one hand, the prevalence of induced abortion and complications noted in these previous studies, and on the other hand because access to comprehensive PAC services can significantly reduce maternal morbidity and mortality linked to unsafe abortions. Therefore, ensuring that facilities are well-equipped to manage abortion-related complications effectively is crucial towards the improvement of maternal health services. Additionally, understanding this gap in PAC provision will help inform policy reforms and targeted interventions aimed at strengthening healthcare systems to better serve the maternal and reproductive health needs of women.

To the best of our knowledge, no study has examined the availability and readiness of health facilities for PAC services in Ile-Ife to PAC. More so, barriers to providing PAC services extend themselves. A study investigated health facility-related barriers and post-abortion care-seeking intentions among women of reproductive age in Osun State, identifying lack of service confidentiality and unavailability of abortion-specific equipment as the two most commonly reported obstacles that would deter women from seeking PAC services[12]. However, this study primarily focused on patient perspectives. It did not delve into the barriers from the standpoint of the healthcare facilities, leaving a critical gap in understanding how institutional factors affect the provision of PAC services.

Thus, this study aimed to assess the availability and readiness of health facilities in Ile-Ife to provide post-abortion care (PAC) services. Additionally, it explored the barriers hindering the effective provision of these services, offering insights into the institutional challenges that affect the quality and accessibility of PAC in these facilities.

Ethical approval

The Ethical approval for this study was granted by the Ethics and Research Committee (ERC) of the Institute of Public Health at Obafemi Awolowo University, Ile-Ife, Nigeria. All the protocol and research instruments were carefully reviewed and received full approval.

Methods

The cross-sectional study was conducted in Ile-Ife, Osun State, targeting medical practitioners within selected public and private healthcare institutions. This selection was based on the presumption that government-run and privately-owned healthcare facilities typically possess advanced medical equipment and have access to skilled medical staff[13,14]. The research exclusively included healthcare institutions officially registered and certified by the Osun State Ministry of Health. To validate this registration and certification, the study team requested the Officers-in-Charge or representative of these healthcare facilities to furnish evidence of their certificates of registration

obtained from the Ministry of Health during the site visits. Twenty-five health facilities (5 public and 20 private) were included. We covered three Local Government Arears (LGAs) in Ile-Ife. In Ife Central LGA, 9 healthcare facilities were randomly selected, 8 in Ife East, and 8 in North. In Ife Central LGA, 7 were secondary facilities and were privately owned, 1 was tertiary and publicly owned and the last was a primary health facility but primarily owned. In Ife East LGA, 2 were private and secondary, 5 were primary and private while 2 were primary and public facilities. In the North LGA, 4 were primary and private, 1 was private and secondary, and the remaining were public. Prior to data collection, initial visits were conducted to brief the facility directors about the study's objectives and procedures. The study respondents were officers-in-charge of the health facilities or a representative in the absence of the officer-in-charge. The officers-in-charge were the population targeted for this study because they are in charge of all activities including PAC in the respective facilities, given their roles in overseeing the provision and management of healthcare services.

Table 1: Description of the basic and comprehensive PAC signal functions criteria

Signal Functions Criteria	**Definition and Use**
Basic PAC Signal Functions	
≤12 weeks' removal of retained products	A procedure to extract remaining tissue from the uterus after an abortion or miscarriage within the first 12 weeks of pregnancy.
Intravenous Antibiotics	Medications administered directly into the bloodstream to prevent or treat infections following an abortion.
Oxytocics	Drugs used to stimulate uterine contractions, helping to manage bleeding and expel retained products post-abortion.
Intravenous replacement fluids	Fluids given through an IV to rehydrate and restore electrolyte balance in patients who may be dehydrated or experiencing significant blood loss.
Any contraception	The provision of various contraceptive methods to prevent future unintended pregnancies after PAC.
Comprehensive PAC Signal Functions	
>12 weeks' removal of retained products	A surgical procedure to remove retained uterine contents after the first trimester.
Blood transfusion	The process of transferring blood products to a patient to address severe blood loss
Laparotomy	A surgical procedure involving an incision in the abdominal wall to access the abdominal cavity for emergencies or complications.
24/7 PAC services available	Access to PAC services at all times, ensuring immediate care for complications or emergencies.
Long-acting reversible contraception	Contraceptive methods (like IUDs or implants) that provide effective birth control for extended periods without requiring daily attention.
Vacuum aspiration for incomplete abortion at <14 weeks	A minimally invasive surgical method to remove remaining tissue after a miscarriage or abortion within 14 weeks.
600µg for Medical management of incomplete abortion at <14 weeks	The recommended dosage of medication (e.g., misoprostol) for medical management of incomplete abortion within the first trimester.
400µg for Medical management of incomplete abortion at ≥14 weeks	The recommended dosage for managing incomplete abortion using medication after the first trimester.
Room with privacy in providing PAC for patients	A dedicated space ensuring confidentiality and comfort for patients receiving PAC services

***The inclusion of confidentiality measured as "rooms with privacy for providing PAC" was based on the WHO (2020) report that PAC services must be administered confidentially.*

***The inclusion of vacuum aspiration, 600µg and 400µg aligns with the WHO's clinical guidelines for managing incomplete abortions of <14 weeks and at ≥14 weeks.*

Their insights are critical for understanding the strengths and weaknesses of PAC services and the barriers to access and quality care that patients may encounter. This knowledge is essential for informing improvements in PAC services and enhancing overall reproductive health outcomes in the community. Informed consent forms were presented and signed by the participants before commencing the data collection.

A mixed-method study was carried out. The quantitative method involved the use of questionnaires to obtain data from respondents. The questionnaire's first section consisted of the respondents' socio-demographic characteristics. The second section comprised questions on the WHO's requirements for providing PAC by any health facility specifically assessing the availability and readiness of providing PAC services in the facilities.

The PAC services comprised three components including ensuring safe induced abortion, managing or treatment of incomplete, and abortion complications, and provision of post-abortion contraception[3,15]. However, this study focused on the last two categories which are the managing or treatment of incomplete and abortion complications and the provision of post-abortion contraception. These two categories have been wrapped up into what is known as the signal functions. The signal functions comprise two categories- the basic and comprehensive signal functions. These signal functions have been used by studies in the assessment of the health systems in providing post-abortion-related care[5,16–20]. In this study, we related availability and readiness to three things: the presence of basic and complete signal functions in healthcare facilities, the availability of those PAC functions within one month, and, the presence of staffing, training, and emergency response capacity for PAC. This last category consisted of some indicators provided by the WHO Service Availability and Readiness Assessment (SARA) questionnaire[21]. Quantitative data were analyzed using STATA 16. The frequency distribution of sociodemographic characteristics of the respondents was obtained (see Table 2). Descriptive statistics was also used to analyze the availability and readiness of facilities to provide PAC. The results were displayed in tables and charts. The qualitative component explored the barriers encountered by the health facilities to provide post-abortion care services. Participants included the same persons who responded to the questionnaire. Data were collected using a semi-structured interview guide that was carefully developed with the supervision of an expert in the abortion field. Due to the busy schedules of the officers in charge, 12 interviews were successfully conducted, transcribed, coded, and analyzed using content and thematic analysis.

Results

Table 2 displayed the background characteristics of respondents. From the results, the majority of respondents were male (64%), aged 45 and above (48%), and highly educated, with 92% having tertiary education. Most of the respondents were married (92%) and practice Christianity (84%). A significant portion (80%) worked in private healthcare facilities, with 76% having less than 10 years of experience. Results on income distribution showed that 60% earned 150,000 Naira or more.

Table 3 compared the availability of basic and comprehensive post-abortion care (PAC) signal functions between public and private health facilities in Ile-Ife (N=25). Due to the limited number of facilities, we grouped them into two categories - public and private - to ensure meaningful analysis. Results on the basic PAC signal functions revealed that private health facilities outperformed public facilities in almost every category. For example, 60.0% of private facilities offered removal of retained products for pregnancies ≤12 weeks, compared to 40.0% of public facilities. Similarly, intravenous antibiotics and replacement fluids were commonly available in private facilities (70.0%), while only 60.0% of public facilities provide these services. Oxytocics on the other hand were available in majority (90.0%) of the private facilities, compared to the 60.0% availability in public ones.

Regarding the comprehensive PAC services, private facilities were generally better equipped than the public ones. For instance, PAC service on the removal of retained products for pregnancies >12 weeks was available in 65.0% of private facilities but only 40.0% of public facilities. Private facilities also offered more blood transfusions (75.0% vs. 40.0%) and laparotomies (50.0% vs. 20.0%) compared to public ones. Furthermore, 24/7 PAC services were available in

Table 2: Background characteristics of respondents (N=25**)**

Variables	Frequency (N)	Percentage (%)
Age of respondents		
25-29	4	16.0
30-34	1	4.0
35-39	3	12.0
40-45	5	20.0
45 and above	12	48.0
Sex		
Female	9	36.0
Male	16	64.0
Educational attainment		
Secondary and below	2	8.0
Tertiary	23	92.0
Facility type		
Private	20	80.0
Public	5	20.0
Years of working in facility		
<5 years	9	36.0
5-9 years	10	40.0
10-19 years	2	8.0
20 years and above	4	16.0
Religion		
Christianity	21	84.0
Islam	4	16.0
Marital status		
Never Married	1	4.0
Married	23	92.0
Widowed	1	4.0
Income (in Naira)		
<50,000	4	12.0
50,000-99,999	6	4.0
100,000-149,000	6	24.0
150000 and above	9	60.0

65.0% of private facilities, but only in 40.0% of public facilities. Other services like long-acting reversible contraception, vacuum aspiration for incomplete abortion, and medical management for incomplete abortion (both <14 weeks and ≥14 weeks) were also more common in private facilities than the public facilities. Lastly, while private facilities had a slightly higher availability of rooms with privacy for administering PAC services (75.0%) compared to public facilities (60.0%), the difference between the two was relatively small. Overall, private facilities in Ile-Ife had a higher availability of providing comprehensive PAC services than public facilities.

We also assessed the level of availability of post-abortion care (PAC) services at the study location as displayed in Figures 1 and 2. First, we computed a composite score based on the responses to questions addressing both basic and comprehensive PAC services. Respondents were asked whether each of the PAC signal functions were available at their facilities. Each question was answered with either a "yes" or "no," with "yes" responses coded as 1 and "no" responses coded as 0. The composite score ranged from 0 to 14, representing the total number of available PAC services across the facilities. we then dichotomized this score into two categories with "low level of availability" representing a score ranging from 0-9 and "high level of availability" which represented a score from 10-14, as illustrated in Figures 1 and 2.

Figure 1 revealed that overall, the availability of PAC services is high in the study area. However, Figure 2 highlights significant differences in PAC service availability between facility types. Specifically, PAC services were found to be more readily available in private health facilities, where 75% of the facilities demonstrated a high level of availability, compared to only 25% in public health facilities. This disparity underscores the gap in PAC service provision between private and public health institutions, with private facilities being far better equipped to meet the demands of PAC services.

Table 4 presents the recent one-month availability of essential components for both basic and comprehensive PAC Signal Function Criteria in each facility. This data serves as a critical verification of the previously reported PAC service availability in Table 3, ensuring that these services are not only present but also promptly accessible in emergencies. Assessing one-month availability is particularly important because it provides a snapshot of the readiness of facilities to handle immediate post-abortion care cases, reflecting their capacity to respond to urgent medical needs. Ensuring that key PAC components, such as intravenous antibiotics, blood transfusion, and removal of retained products, are consistently available within this time frame is crucial for effective emergency management and reducing maternal morbidity and mortality associated with unsafe abortions. The one-month assessment offers

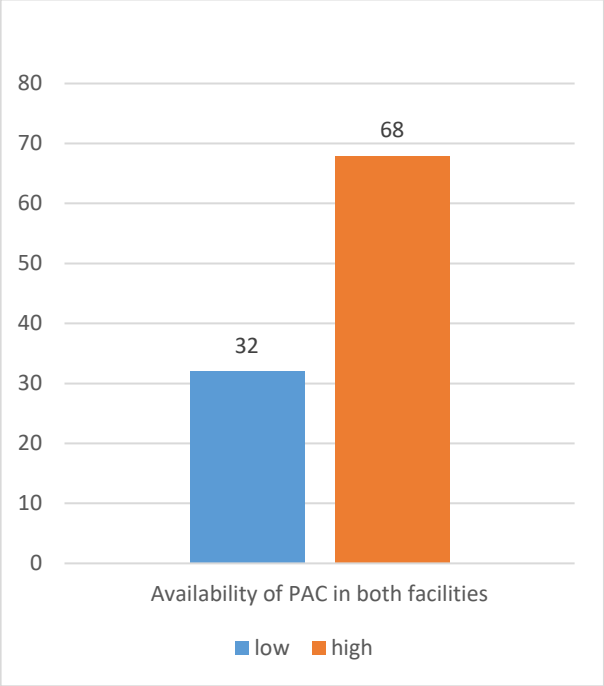

Figure 1: Level of availability of PAC signal function services in all the selected health facilities

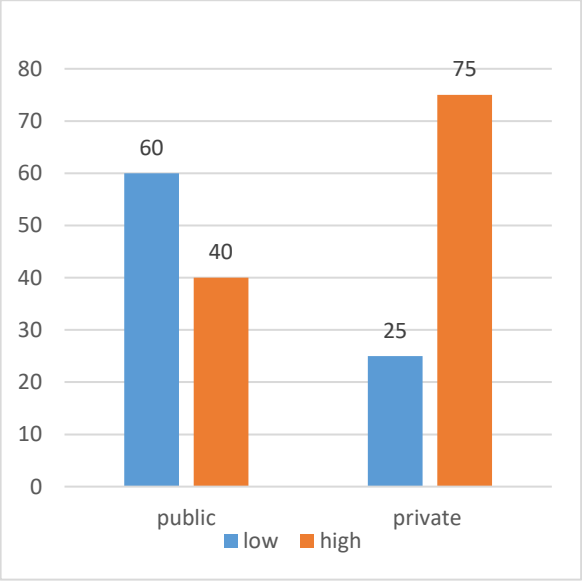

Figure 2: Comparative availability of PAC signal function Services between public and private health facilities in Ile-Ife

a more dynamic understanding of the facilities' functionality, highlighting their ability to sustain service provision in real-time situations.

In public facilities, the availability of key PAC services was significantly limited. For instance, only 20% of public facilities could perform the removal of retained products for cases up to 12 weeks. Similar low availability rates were obtained for intravenous antibiotics and oxytocics (40% each). On the contrary, private facilities demonstrated a much higher availability of these essential services, with 75% able to provide the removal of retained products, and 100% availability for intravenous antibiotics and fluids. This stark difference highlights the challenges faced by public facilities in offering comprehensive PAC services, with a majority of basic components either unavailable or significantly lacking.

In terms of comprehensive PAC services, public facilities again lag behind private facilities compared to private health facilities. From Table 4, only 20% of public facilities could perform the removal of retained products beyond 12 weeks in the last one month, while 65% of private facilities could provide this service. Blood transfusions and laparotomies also show limited availability in public facilities, each at 20%, compared to 75% and 50% in private settings, respectively. Furthermore, essential medications such as misoprostol for medical management of incomplete abortion were less available in public facilities in the past one month, with only 20% availability for both the oral and sublingual administration routes. The data revealed a notable disparity between public and private facilities regarding PAC service availability, indicating a pressing need for improvements in public health infrastructure to ensure equitable access to essential reproductive health services.

Table 5 compares staffing, training, and emergency response capacities for post-abortion Care (PAC) services across public and private health facilities. Staffing, training, and emergency response capacities serve as crucial indicators of a health facility's preparedness to deliver Post-abortion Care (PAC) services. Sufficient staffing ensures that qualified personnel are available around the clock to provide timely and effective care. Regular training of staff is essential for maintaining up-to-date clinical skills and knowledge, which are critical in managing complications that may arise during PAC. Additionally, the availability of emergency response systems, such as standby ambulances, enhances a facility's ability to manage critical cases promptly. Collectively, these factors reflect a

Table 3: Availability of the basic and comprehensive PAC signal function criteria by public and private facility (N = 25)

PAC Functions	Public (n=5)	Private (n=20)
Basic PAC signal function criteria		
≤12 weeks' removal of retained products	2 (40.0)	12 (60.0)
Intravenous Antibiotics	3 (60.0)	14 (70.0)
Oxytocics	2 (60.0)	18 (90.0)
Intravenous replacement fluids	3 (60.0)	9 (20.0)
Comprehensive PAC signal functions criteria		
>12 weeks' removal of retained products	2 (40.0)	13 (65.0)
Blood transfusion	4 (40.0)	15 (75.0)
Laparotomy	1 (20.0)	10 (50.0)
24/7 PAC services available	2 (40.0)	13 (65.0)
Long-acting reversible contraception	3 (60.0)	14 (70.0)
Vacuum aspiration for incomplete abortion at <14 weeks	2 (40.0)	13 (65.0)
60µg for medical management for incomplete abortion at <14 weeks	1 (20.0)	11 (55.0)
400µg for medical management of incomplete abortion at ≥ 14 weeks	3 (60.0)	10 (50.0)
Room with privacy in providing PAC for patients	3 (60.0)	15 (75.0)

Table 4: Percentage of Facilities that have the specific components for basic and comprehensive PAC Signal Function Criteria, in the last one month (N = 25)

	Public n=5		**Private n=20**	
PAC Signal Functions	**Available**	**Not Available**	**Available**	**Not Available**
Basic PAC signal functions				
≤12 weeks' removal of retained products	1 (20.0)	4 (80.0)	15 (75.0)	5 (25.0)
Intravenous Antibiotics	2 (40.0)	3 (60.0)	12 (60.0)	8 (40.0)
Oxytocics	2 (40.0)	3 (60.0)	18 (90.0)	2 (10.0)
Intravenous replacement fluids	2 (40.0)	3 (60.0)	13 (65.0)	7 (35.0)
Any contraception	4 (80.0)	1 (20.0)	15 (75.0)	5 (25.0)
Comprehensive PAC signal functions				
>12 weeks' removal of retained products	1 (20.0)	4 (80.0)	13 (65.0)	7 (35.0)
Blood transfusion	2 (40.0)	3 (60.0)	15 (75.0)	5 (25.5)
Laparotomy	2 (40.0)	3 (60.0)	12 (60.0)	8 (40.0)
24/7 PAC services available	3 (60.0)	2 (40.0)	13 (65.0)	7 (35.0)
Long-acting reversible contraception	3 (60.0)	2 (40.0)	14 (70.0)	6 (30.0)
Vacuum aspiration for incomplete abortion at <14 weeks	1 (20.0)	4 (80.0)	13 (65.0)	7 (35.0)
600µg misoprostol administered orally for medical management of incomplete abortion at <14 weeks	3 (60.0)	2 (40.0)	17 (85.0)	3 (15.0)
400µg misoprostol administered sublingually for medical management of incomplete abortion at ≥14 weeks	1 (20.0)	4 (80.0)	10 (50.0)	10 (50.0)
Room with privacy in providing PAC for patients	3 (60.0)	2 (40.0)	15 (75.0)	5 (25.0)

Table 5: Staffing, training, and emergency response capacity for PAC services by facility type (N= 25)

Indicators	Public (n=5) %	Private (n=20) %
Availability of trained staff in delivering PAC services	40.0	65.0
Number of trained staff in delivering PAC services	n= 3	n= 15
Trained staff(s) are on a permanent basis	100.0	60.0
Trained staff(s) are on a contract basis	-	40.0
Staff undergo periodic training in PAC	60.0	75.0
The facility has a standby ambulance to transfer patients in times of emergency	20.0	45.0

**The Table consists of some adapted Indicators for Assessing the Availability and Readiness of Healthcare Facilities in service delivery based on the WHO Service Availability and Readiness Assessment (SARA) Questionnaire),2013. https://iris.who.int/bitstream/handle/10665/104075/WHO_HIS_HSI_RME_2013_1_eng.pdf

facility's readiness to provide consistent and comprehensive PAC services, particularly during emergencies. In terms of the availability of trained staff in PAC, 65% of private facilities have trained staff available for PAC services, whereas 40% of public facilities meet this criterion. Private facilities tend to rely more on contract-based staff (40%) compared to public facilities, where all PAC-trained staff are permanent employees (100%). Periodic training for PAC staff is also more common in private facilities (75%) than in public ones (60%). Lastly, the availability of standby ambulances for emergency patient transfers is higher in private facilities (45%) compared to public facilities (20%). This highlights the disparity in both service readiness between the two facility types.

Qualitative findings on perceived arriers to providing PAC services for managing incomplete abortion cases

Providing post-abortion Care (PAC) services presents significant challenges in many sub-Saharan African countries, including Nigeria, where legal restrictions often limit pregnancy termination to cases where the mother's life is at risk. These regulations can restrict healthcare facilities' ability to deliver PAC services effectively. Despite the vital role PAC plays in public health, numerous obstacles continue to hinder its provision, as highlighted in a study[4]. This section outlines the barriers faced by health facilities in delivering PAC services, organized into themes and analyzed through content analysis.

Low awareness of guidelines and rules for providing PAC

The participants demonstrated awareness of the benefits of Post-abortion Care (PAC). However, despite their reported familiarity with PAC, they lacked a comprehensive understanding of the 2022 WHO guidelines and regulations governing its provision. Hence, this constrains them from administering PAC services freely to patients who need them. one participant's quote captured these explanations:

"We don't attend to them here, we do refer and no am not aware of the WHO guidelines on key human rights considerations relevant to follow up care." [IDI, Private Health Facility, Ife Central].

Patients' negative attitude to accessing PAC services

Patient non-compliance was another barrier highlighted by the participants, noting that some individuals may choose to seek assistance from unqualified providers. This decision not only complicates their health outcomes but also undermines the efforts of qualified practitioners to deliver informed and effective treatment. When patients opt for unregulated sources, they may receive inadequate or harmful care, leading to further complications and infections that could have been prevented through proper PAC services. Quotes from two participants illustrate this.

"… but the problem is that you can ask them to go to one hospital and not go, even some people go to

quacks. Yes, instead of going to the right place they go to quarks, people who don't know as much as we do."

"…for example, this morning she came, she came yesterday with complications of bleeding in the vagina, she did not even mention bleeding she complain of stomach."

Lack of experience of health workers

In crises, the lack of post-abortion-related skills and services hinders PAC readiness[22]. Healthcare providers' ability to offer these services depends on their capacity to handle delicate cases according to established guidelines, as indicated below:

"Commonly we talk of service incompetency, most of the times, it's service incompetency that one can be hanged."

Inadequate availability of essential PAC equipment and staff

The assessment of post-abortion care availability revealed significant barriers faced by women and adolescents who have undergone abortions. Participants reported a lack of essential equipment necessary for effective PAC delivery, including inadequate scanning devices, insufficient blood bank facilities, and a shortage of referral ambulances. These shortcomings critically hinder the timely and safe delivery of PAC services, exacerbating health risks for patients in need. The following quotes from participants underscore these challenges:

"Well there are many, as far as we are concerned… some people due to bleeding might have been short of blood if I discover it's not something we can handle, you know to get blood at time is very difficult so it's either we refer the patients."

"…the equipment is not enough. If we had MVac it would only be one….there is no ambulance on ground that can facilitate the quick transportation of patients."
"Okay mostly ambulance would be the most because when I'm doing such things it may…"

Also, a limited number of experienced PAC staff can constrain the ability to provide post-abortion care services in any health facility[23]. support this observation, stating that the shortage of healthcare personnel is a significant barrier to delivering quality post-abortion care services. A participant noted:

"… we are short-staffed, we have just 2 nurses and a doctor covering the whole facility and we have 2 attendants. We are just running the morning and afternoon shift, whereas if we are running all the 3 shifts, that is morning afternoon and night, there is every possibility that people will be coming for PAC."

Participants also mentioned that insufficient space in healthcare facilities hinders PAC, aligning with the findings from a study[24]. Limited physical space restricts the ability to create dedicated areas for PAC, which are essential for ensuring privacy and confidentiality for patients[3]. This lack of adequate space often results in overcrowding, making it challenging for healthcare providers to offer personalized care and support. In addition, insufficient space can compromise the safety and comfort of patients, leading to increased anxiety and discomfort during what is often a vulnerable time. Here's one participant's account below:

"… there is no space for privacy, so there is no special room for administering post-abortion care services. It is the same procedure room we use for all procedures we do, maybe delivery, and insertion of family planning, we use the same room. There's no appropriate privacy for it."

Despite certain inadequacies in the provision of Post-abortion Care (PAC) services, some of the participants acknowledged the specific PAC services offered by their healthcare facilities, as detailed below.

"That's what I've been talking about. I said, sometimes, we'll need to do Manual Vacuum Aspiration depending on what such patient presents with, that's what will guide us or form the baseline for our care."

Another participant reiterated that:

"The treatment we can render is that we have to evacuate the retained product and after which we apply saline, metros infusion, Cipro infusion and

some antibiotics like gents, crystal penicillin etc after that she should be fine whenever they come after diagnosis, we carry out the treatment immediately to save their lives and after which we admit for the treatment."

Negative attitudes of staffs

The participants also stated that health workers' attitudes toward clinical versus clandestine abortions significantly hinders the provision of post-abortion care (PAC) services. In many cases, facilities exhibiting negative attitudes toward clandestine abortions often refuse to provide care to patients seeking assistance. This reluctance, as highlighted during one of the interview sessions is further compounded by religious beliefs, which can contribute to the negative perceptions surrounding abortion and impact healthcare workers' willingness to engage with patients who have undergone clandestine procedures. Such attitudes create barriers to accessible and compassionate care for those in need of PAC services. The following statements were captioned:

"...but if a criminal abortion case is brought to this hospital I refer them to the teaching hospital because most of them can die at any time and you cannot predict criminal abortion."
"Incomplete abortion, in this environment here people are fond of doing criminal abortion in this one, I know some of the private hospitals because of the money they would get but here personally because I'm a pastor I don't do such things, they do come here but tell them I don't involve in such things."

Despite the prevailing negative attitudes surrounding abortion, one participant noted that their health facility maintains a neutral stance regarding the administration of Post-abortion care services, regardless of the type of abortion procedure performed.

"What I know about PAC service, if a patient is brought to our clinic if it has been done already—though we don't do abortion if the patient has already done the abortion and it's not done properly, when the patient is brought to the hospital the first thing, we do is to take a scan to check if there is still retained products then we carry out evacuation for the patient and administer evacuation drugs."

Costs of post-abortion care services

Additionally, it was deduced from the interviews that even in facilities where post-abortion care services are available, the cost associated with these services can be prohibitively high, creating barriers to access for women. Articulated below is the voice of a participant:
"Most of clients are not always able to afford the payment and, PAC is not free. Most of the time they beg until…some people even come and explain every part of their life, and when I discover that the person is at risk, it may cause another complication in the future, I just have to attend to them because I would not want them to go back to the past.".

Discussion and conclusion

This study is timely in responding to the call for research and policy attention to not only the practice of unsafe abortion but to the provision of post-abortion care by providing significant insights into the availability and readiness of post-abortion care (PAC) services across both public and private health facilities in Ile-Ife. In contrast to private health facilities, the quantitative analysis revealed that public facilities lacked availability for most PAC services, including most fundamental and comprehensive signal functions. However, comparing the components of the PAC service delivery, there were notable differences. For instance, while long-acting reversible contraception and intravenous antibiotics were relatively high in both public and private facilities, other complex procedures, such as >12 weeks' removal of retained products showed low availability (40% vs 65%). Similarly, only 20% of public facilities reported having >12 weeks' removal of retained products in the last month compared to 65% of private facilities.

In addition, the readiness becomes more pronounced when examining comprehensive PAC services. In public facilities, only 20% can perform procedures such as removing retained products beyond 12 weeks and blood transfusions. Private facilities, however, show much higher levels of service availability, with 65% offering retained product removal beyond 12 weeks and 75% capable of providing blood transfusions. Moreover, while

60% of private facilities can perform laparotomies, this service is available in just 40% of public facilities. The availability of key medications like misoprostol is similarly limited in public facilities, where only 60% offer these medications for medical management, compared to significantly higher rates in private facilities. These findings call for an immediate improvement in public health infrastructure and resources to bridge the gap between public and private facilities, ensuring equitable access to essential reproductive healthcare services, particularly for women reliant on public healthcare. Most recent studies also substantiate these findings by identifying significant deficiencies in PAC services across ten countries in sub-Saharan Africa[5,16].

Our study found that though the public and private facilities had trained staff, there were variations in the number and employment status of staff. More permanent employees were recruited in public facilities, which may help with continuity of care. However, the reported smaller number of trained staff in these health facilities poses a challenge in effectively delivering high-quality PAC services to patients. Additionally, the notable percentage of trained staff trained in private facilities on a contract basis questions the sustainability and continuity of care, especially in emergencies.

The availability of emergency response capacity is another area that determines a facility's readiness to deliver quality PAC services. Our study found that only 20.0% had a standby ambulance in public facilities while 45.0% of the private facilities reported having standby ambulances. This mirrors a challenge in managing post-abortion complications, particularly in urgent scenarios. This lack of emergency preparedness can negatively impact patient's health outcomes because timely access to emergency transport is critical in managing abortion complications that are life-threatening. This finding is in tandem with Alaofe, who underscored the importance of emergency transportation in life-saving interventions, particularly in pregnancy outcome matters[25].

The qualitative findings on the perceived barriers to delivering PAC services range across regulatory, cultural, religious, and systemic factors. The study found that the restrictive abortion laws in many sub-Saharan African countries, including Nigeria, often constrain the free delivery of PAC services by health facilities to women who need them. Furthermore, our study revealed that the participants lack sufficient knowledge of the 2022 WHO's latest guidelines and recommendations in providing PAC services to manage incomplete abortions and complications arising thereof, despite that they demonstrated a high awareness of the importance of PAC. This inadequate understanding hinders the effective delivery of PAC services because some healthcare providers are uncertain about how to proceed under restricted national laws and international guidelines. A similar finding was reported by Kemei and colleagues, where evidence suggested that health providers had limited knowledge of abortion law, particularly relating to how PAC can be executed lawfully[26].

Another significant finding is the negative attitude of patients toward accessing PAC services. It was deduced that some patients have a non-compliant attitude toward receiving PAC in medical facilities; instead, they choose to visit quacks, according to some of the views shared by the participants. This finding is plausible given that some women, particularly those who have had clandestine abortions, fear stigma and discrimination from medical professionals. Their reliance on quacks leads to worsened health outcomes, including severe bleeding and infections. This finding is in line with that of Netshinombelo *et al*[27].

The shortage of essential resources, including equipment and skilled personnel, emerged as another critical barrier to effective PAC delivery. Notable were the lack of scanning devices and blood transfusion capabilities, to manage post-abortion complications properly. The absence of referral ambulances further exacerbates the problem, delaying the transfer of patients needing urgent care. Inadequate staffing levels, particularly in public health facilities, also impede providing comprehensive PAC services. Participants reported that many facilities are understaffed, leading to an overextension of the available personnel, comprising the quality and accessibility of care. Moreover, the lack of dedicated space for administering PAC services, especially in overcrowded public facilities, undermines the privacy and confidentiality of patients, which are essential components of high-quality care as posited by WHO[3]. These findings are also similar to a previous study conducted in Kenya where a lack

of training on PAC and ill-equipped facilities were identified as barriers to the delivery of high-quality PAC[26].

A striking finding from the qualitative study is the negative perception and attitude of health workers towards abortion matters. According to the participants, these attitudes are often shaped by the religious beliefs of health providers which in turn, affect providers' willingness to provide PAC to women, especially to those who have undergone clandestine abortions. These findings are similar to a study that showed that barriers to PAC uptake include poor decision-making by caregivers who send away deserving clients needing service[28]. Extending these findings further is the work of Toro-Flores *et al*, which showed that certain healthcare staff had negative impressions of PAC services and justified them with their religious beliefs or conscientious objections[29]. The authors argued that some providers were unwilling to give care or share information on abortion services, which resulted in complications, delays, and inability to access PAC services. Izugbara *et al* also penned that the majority of sub-Saharan African nations, including Nigeria, have national laws that are generally restrictive and intersect with other governmental policies and cultural norms to restrict access to and availability of PAC[4]. Although the findings were not significant, another study found that even though most of their participants agreed that they would not allow PAC services to be delivered to a woman presenting with incomplete[26].

Lastly, depending on the nature of abortion procedures, the study found that the cost of PAC services poses a barrier to delivering PAC as well as creates a challenge to women in need of PAC. Although one healthcare provider expressed empathy and a willingness to treat patients in life-threatening situations during the interview, the overall financial barrier remains a significant issue that limits access to comprehensive post-abortion care. This finding further buttresses the high estimated annual healthcare expenditure associated with treating complications from unsafe abortion in Sub-Saharan Africa, which ranges from $68 million to $76 million[15]. A study also found that found that only women with higher income were more likely to demand post-abortion care compared to low-income women[30]. According to a systematic review study, the cost of post-abortion care varies between countries, but a mix of direct medical expenditures, labor costs, and supply and drug costs illustrates how expensive it is for women to seek PAC services[31].

In conclusion, this study showed that public health facilities lagged in availability and readiness to provide PAC services, particularly for comprehensive procedures and emergency care. The study also found that barriers ranging from legal restrictions, patients' non-compliance, and providers' negativity towards abortion practice to inadequate staffing and financial constraints affect the delivery of high-quality PAC services. We therefore recommend that the government and stakeholders should strengthen public health facilities through adequate funding for infrastructure and adequate staffing. Second, through organizing workshops, the WHO guidelines for managing incomplete abortions and complications through the provision of PAC should be compulsorily disseminated to health providers to prevent knowledge gaps that may arise in treating patients. Lastly, the re-evaluation of the restrictive abortion laws in Nigeria will increase access to PAC without stigma or discrimination.

This study is without limitations. First is the small sample size of the facilities especially the public, which could have underestimated our results and restricted the generalization of our findings. In particular, the small sample size of the public health facilities could potentially cause bias toward overestimating the availability and readiness of private health facilities to provide post-abortion care (PAC) services. More so, reliance on self-reported data from healthcare facilities could introduce bias, as actual service provision might differ from reported availability. Nonetheless, a key strength of our study is its use of a mixed-method approach to assess the availability and readiness of post-abortion care (PAC) services in public and private health facilities and the barriers to quality delivery of the services. This provides a comprehensive understanding of service gaps and barriers from multiple perspectives.

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Conflict of interest

The authors declared no conflict of interest.

Authors contribution

Bosede Adejugbe and Joshua Akinyemi conceived the idea and designed the study. Bosede Adejugbe collected and analyzed the data. Bosede Adejugbe, Joshua Akinyemi, Akanni Akinyemi, Ogunoye Oladimeji, and Oluseun Adejugbe organized the manuscript and contributed to the thorough proofreading of the manuscript for accuracy in spelling and grammatical coherence. All authors mentioned in the article reviewed and approved the final submitted manuscript.

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